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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/696,618

10/29/2003

Allen A. Aradi

NM 7607

5585

66882

7590

02/27/2007

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EXAMINER

TOOMER, CEPHIA D

ART UNIT

PAPER NUMBER

1714

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

02/27/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/696,618

Applicant(s)

ARADI ET AL.

Examiner

Cephia D. Toomer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 28 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 28, 2006 has been entered.

2. This Office action is in response to the amendment filed November 28, 2006 in which claims 1 and 15 were amended. Claim 26 is also identified as amended, however, no markings appear in the text of the claim.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-8, 12-22 and 26-28 rejected under 35 U.S.C. 103(a) as being unpatentable over Dorer (US 4,664,677) in view of Kalghatgi.

Dorer teaches a fuel composition for internal combustion engines comprising a manganese containing compound and a copper-containing compound (see abstract).

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The disclosure of internal combustion engine encompasses a spark ignited internal combustion engine having a fuel injection system and 6 or more cylinders as set forth in claims 12, 14, 26 and 28, absent evidence to the contrary. The compounds may be inorganic or organic. Examples of the inorganic compounds include manganese oxides, manganese hydroxides, manganese carbonates, copper oxides, copper hydroxides, manganese carbonates, copper oxides, copper hydroxides, and copper carbonates (see col. 1, line 65 through col. 2, lines 1-2). The organic compounds may be salts of carboxylic, sulfonic and phosphorus acid (see col. 2, lines 7-17). The fuel compositions have a combined manganese and copper content of about 1-1000 ppm and the fuel may be gasoline (encompasses unleaded) or diesel (see col. 7, lines 13-18, 26-43, Examples VI and VII). Dorer teaches that the fuel additive of his invention reduces engine deposits (see col. 1, lines 50-55).

Dorer teaches the limitations of the claims other than the methods of claims 1 and 15. However, the discovery of a previously unappreciated property of a prior art composition does not render the old composition patentably new to the discover. Thus the claiming of a new use, new function or unknown property does not necessarily make the claims patentable. Furthermore, Kalghatgi teaches that the use of conventional detergent additive packages makes the combustion chamber deposit (CCD) less likely to flake. Since the metal compounds of Dorer function as detergents and Kalghatgi teaches that detergents reduce flaking, it would be reasonable to expect that Dorer would reduce combustion chamber deposit flaking.

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With respect to the method of reducing cold start emissions, it would be reasonable to expect that Dorer also meets this limitation since his additives reduce ignition temperature of particulates and reduces emissions.

5. Claims 1-3, 6-10, 12-17, 20-24 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henderson (US 3,179,506) in view of Kalghatgi.

Henderson teaches a hydrocarbon fuel of gasoline (encompasses unleaded) for use in spark ignition internal combustion engines wherein the fuel comprises methylcyclopentadienyl manganese tricarbonyl (see claim 4). The disclosure of spark ignition internal combustion engines suggest a fuel injection system and 6 cylinder engine as set forth in claims 12, 14, 26 and 28 , absent evidence to the contrary. Henderson teaches that the fuel does not lay down combustion chamber deposits (see col. 2, lines 15-19) and . The manganese compound is present in the fuel in an amount up to 2 g/gal fuel (see col. 6, lines 26-30).

Henderson teaches the limitations of the claims other than the methods of claims 1 and 15. However, the discovery of a previously unappreciated property of a prior art composition does not render the old composition patentably new to the discover. Thus the claiming of a new use, new function or unknown property does not necessarily make the claims patentable. Furthermore, Kalghatgi teaches that the use of conventional detergent additive packages makes the combustion chamber deposit (CCD) less likely to flake. Since the metal compounds of Henderson function as detergents and Kalghatgi teaches that detergents reduce flaking, it would be reasonable to expect that

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Henderson would reduce combustion chamber deposit flaking and by reducing the flaking would also would reduce cold start emissions.

6. Claims 11 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henderson and Kalghatgi as applied to claims above, and further in view of Kaneko (US 5,401,280).

Henderson has been discussed above. Henderson fails to teach the sulfur content of the gasoline. However, Kaneko teaches this difference. Kaneko teaches gasoline compositions wherein the maximum sulfur content of the gasoline is 50 ppm or less (see col. 3, lines 15-20).

It would have been obvious to one of ordinary skill in the art to select a gasoline comprising less than 30 ppm sulfur because Kaneko teaches that gasoline should have less than 50 ppm sulfur otherwise the exhaust gas cleaner would malfunction. Also, the greater the amount of sulfur that is present in the fuel the greater the amount of harmful SO<sub>x</sub> emissions.

7. Applicant's arguments have been fully considered but they are not persuasive.

The declaration submitted by Mr. Aradi has been considered but is not deemed persuasive. Dorer and Henderson in view of Kalghatgi suggest that the use of detergents such as set forth in the claims reduce combustion deposit flaking. Mr. Aradi has not provided any data to show that the prior art composition would not perform the claimed method.

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Applicant argues that nowhere in Dorer is it mentioned that combustion chamber deposits or flaking or the ability or lack of ability to inhibit combustion chamber deposits by combusting the fuel occurs.

At col. 1, lines 50-55, Dorer teaches that the additives of his invention reduces engine deposits. Kalghatgi teaches that detergents that reduce deposits make CCD flaking less likely to occur.

Applicant agrees that Henderson is concerned with combustion chamber deposits, but does Applicant argues that Henderson does not mention flaking.

It is clear that the additives of Henderson do not cause engine deposits and therefore would reduce flaking. In order for flaking to occur, there has to be some deposits. Henderson reduces the deposits and thus reduces the flaking of the deposits.

Applicant argues that nowhere in the disclosure of the prior art is it a teaching of an advanced emissions control system or a direct injection gasoline engine. Applicant argues that the prior art teaches older technology engines and that these engines do not contain advanced emissions control systems. Applicant argues that the present invention is no mere discovery of a previously unappreciated property of a prior art composition.

The question to be answered here is whether or not the composition of Dorer and Henderson would reduce combustion deposit flaking, be it in a system that contains an advanced emissions control or in an older technology system that does not contain an advanced emissions control. It is clear from reading the prior art that the metal compounds reduce deposits in combustion chambers. The degree of combustion

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chamber deposit flaking is irrelevant since the claims do not speak to this issue. Dorer and Henderson specifically teach that the metal compounds do inhibit deposits and the skilled artisan having a spark-ignited combustion engine having an advanced emissions control would have every expectation that the composition of Henderson and Dorer would reduce deposit flaking in the combustion chamber, especially in view of the teachings of Kalghatgi.

Applicant argues that the examiner has not identified the hypothetical person of ordinary skill in the art. Applicant argues that those of ordinary skill in the art is not historically aware of the problems of combustion chamber deposit flaking..

This fictional person is considered to have normal skill and knowledge in the art without being a genius. He or she serves as a reference for determining whether an invention is non-obvious. It should be noted that a skilled artisan such as Darling (US 2,844,447) recognized, as early as 1953, that combustion chamber deposits did flake off in internal combustion engines combustion chambers that did not contain non-advanced emission control systems and that these flakes were removed through the exhaust of the engine.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cephia D. Toomer whose telephone number is 571-272-1126. The examiner can normally be reached on Monday-Thursday.

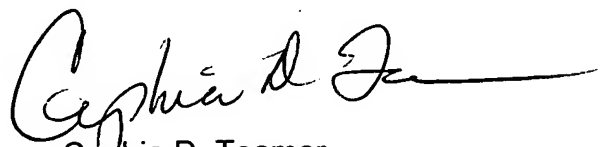
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 571-272-1119. The fax phone



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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Cephia D. Toomer  
Primary Examiner  
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